



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/646,198	09/14/2000	Mitsuji Matsui	1419-00	5728

35811 7590 03/23/2004

IP DEPARTMENT OF PIPER RUDNICK LLP
3400 TWO LOGAN SQUARE
18TH AND ARCH STREETS
PHILADELPHIA, PA 19103

EXAMINER

UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
----------	--------------

1773

DATE MAILED: 03/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

512

Office Action Summary	Application No. 09/646,198	Applicant(s) MATSUI ET AL.	
	Examiner Nikolas J. Uhler	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01272004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment/arguments dated 1/22/2004. Currently, claims 1-11 and 13-16 are pending.

Information Disclosure Statement

2. The information disclosure statement dated 1/22/2004 has been considered. A signed and initialed copy of this information disclosure statement accompanies this office action.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-7, and 9, 11 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujino (JP08-197222) in view of Sakoda et al. (EP0730040), further in view of Kaumle et al. (US6068890).
5. This rejection is maintained as set forth by the previous office action dated 9/17/2003 and for the reasons set forth below.
6. With respect to the new limitation that the single piece light metal casting be formed by *simultaneously* applying a casting pressure of more than about 50MPa from an ejection plunger and an auxiliary pressure from a pressuring pin, the examiner takes the position that this limitation is met by the previously asserted grounds of rejection. Fujino teaches a casting method whereby molten aluminum is injected into a mold via an injection plunger (equivalent to applicant's ejection plunger) and pressurizing pins are utilized to increase the pressurizing effect (see section 004). In order for the

injection plunger to perform its function, it must necessarily apply some pressure to the molten metal to force the melt into the mold, as some pressure is required to force the melt into the mold and keep the injection plunger in place while the mold is further pressurized by the pressurizing pins. This pressure from the injection plunger in Fujino is clearly implied in Fujino, as the reference states that pressurizing pins are utilized so that "a pressure effect can go up" (see section 4). By stating that a pressure effect "can go up," it is clearly implied that a lower pressure effect must have been already present. Bearing this in mind, Sakoda clearly teaches the benefits of applying a casting pressure of 50MPa or more from an injection plunger to molten aluminum in a mold (see page 4, lines 54 and 58 and the figures). The obviousness of modifying the method of Fujino to include the high-pressure step of Sakoda is included in the previous office action (9/17/2003) at section 10. Thus, as the pressure applied by the pressuring pins and the plunger is applied at the same time, the requirement that the ejection plunger pressure and the auxiliary pressure from a pressuring pin be simultaneously applied is met.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujino as modified by Sakoda and Kaumle as applied to claim 1 above, and further in view of Ohtani et al. (US4542070).

8. This rejection is maintained as set forth in the prior office action dated 09/17/2003 and as set forth above.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujino modified by Sakoda and Kaumle as applied to claim 1 above, and further in view of Nishimura et al. (JP08041410).

10. This rejection is maintained as set forth in the prior office action dated 09/17/2003 and as set forth above.

Response to Arguments

11. The applicant's arguments dated 1/27/2004 have been considered but are not persuasive. In the instant case the applicant made two primary arguments. First, the applicant argues that the Fujino reference does not teach applicant's simultaneous application of pressure from the ejection plunger and an auxiliary pressuring pin. This is based on applicant's assertion that that Fujino only teaches pressurizing the mold via the pressurizing pins and is silent with respect to pressurizing the mold by applying pressure from the injection plunger. Second, applicant argues that the examiner has used impermissible hindsight in making the asserted combination of Fujino with Sakoda. This is based on the applicant's assertion that Sakoda, when viewed as a whole, teaches away from the formation of single piece aluminum alloy wheels via high-pressure cast molding. As a result, the applicant asserts that there would be no motivation to one of ordinary skill in the art at the time the invention was made to make the proposed modification.

12. These arguments are not persuasive. The examiner respectfully disagrees with applicant's assertions in the first argument. Though it appears that Fujino is silent with respect to the application of pressure from the injection plunger, as noted above the injection plunger would necessarily have to apply at least some pressure to the molten aluminum to force it into the mold cavity. This pressure is strongly implied by the fact that Fujino utilizes pressurizing pins to allow the pressure effect to "increase." By stating

Art Unit: 1773

that the pressuring pins "increase" the pressure effect, it is strongly implied that a pressure effect (albeit lower) is present prior to application of additional pressure from the pressurizing pins. Further, injection plungers typically operate by moving from a retracted position to an extended position, whereby molten material is forced into the mold cavity. If the injection plunger of Fujino applied no pressure to the molten aluminum (i.e. no force was utilized to hold the plunger in place), when the pressurizing pins pressurize the melt, the injection plunger would be forced back to its original retracted position, which would likely cause substantial defects to occur in the molded article at the point at which the plunger and the melt are in contact. Thus, the injection plunger must necessarily apply some force to the melt in order to operate. Bearing this in mind, it is clear from Sakoda that molten aluminum parts are beneficially cast under high ($>50\text{MPa}$) pressure, wherein the pressure is supplied from the injection plunger. These benefits include reduced probability of cracking, shrinkage, and reduced mechanical properties. Thus, there is clear motivation to one of ordinary skill in the art to modify the Fujino reference to include the 50MPa -pressurizing step from the injection plunger taught by Sakoda. As the pressure from the injection plunger and the pressurizing pins in Fujino is applied simultaneously (Fujino injects the melt via the injection plunger, which applies some level of initial pressure and then further pressurizes the melt with the pressurizing pins while it is under that initial pressure), the combination meets the requirements of claim 1. Thus, applicant's first argument is unpersuasive.

13. The applicant's second argument is also unpersuasive. Applicant has asserted that Sakoda, when read as a whole, actually teaches away from the formation of single piece aluminum alloy wheels via high-pressure cast molding. The examiner respectfully disagrees. The examiner acknowledges that Sakoda does in fact teach that single piece aluminum alloy wheels have many advantages (i.e. structural rigidity, reduced number of parts etc.) and disadvantages (cost/complexity of production, structural defects etc.), as disclosed at page 2, lines 13-20 of the reference. However, Sakoda does not state that these disadvantages are a result of the method in which the single piece wheel is formed (i.e. high pressure molding). Rather, these disadvantages are merely disclosed to elucidate the advantages of multipart wheels over that of single part wheels in general. Thus, while the reference may teach that single part wheels have many disadvantages, because these disadvantages do not result from the method that forms the wheel, Sakoda does not teach away from the use of high pressure molding to manufacture single part wheels. Further, the benefits of the molding method taught by Sakoda would be recognized by one of ordinary skill in the art to likely apply to any cast molded aluminum alloy part.

14. The applicant has also correctly asserted that impermissible hindsight may not be utilized to recreate a claimed invention from the prior art and that prior art is only properly combined if there is some motivation or reasoning in the prior art to make the modification. In response to this argument the examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary

references. *In Re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combinations of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). In the instant case, there is clear motivation to combine the references in the manner asserted. Specifically, Fujino teaches a method for molding a cast aluminum wheel, noting that some of the problems in the prior art methods of molding include the formation of shrinkage cavities (see Fujino section 002). Sakoda teaches that by applying high (>50MPa) pressure to molten aluminum while it is being cast results in a molded article that exhibits many improvements, i.e. the formation of an article that is less likely to shrink, crack, or have reduced mechanical properties (see Sakoda page 4, lines 36-40). Therefore it is clear that the method of Sakoda addresses the problem in Fujino, and provides additional benefits as well.

15. Thus, the applicant's arguments are deemed to be unpersuasive for the reasons set forth above. As the remainder of the applicant's arguments stem from those set forth above, they are unpersuasive as well.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this act/ion. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 571-272-1517. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on 571-272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NU

Paul Thibodeau
Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700